

**THIS PROCEDURE CONTAINS
HAZARDOUS OPERATIONS**



HESSI SPACECRAFT MGSE PROCEDURES FOR THERMAL VAC

HSI_MIT_050A

2000-NOV-09

PAUL TURIN

As Run on: _____ (Date/Time)

By _____ (Test Conductor)

DOCUMENT REVISION RECORD

Rev.	Date	Description of Change
A	2000-11-9	Original draft

Project Manager: _____
 Peter Harvey Date

System Engineer: _____
 David Curtis Date

QA: _____
 Ron Jackson Date

MGSE: _____
 Paul Turin Date

1. COLD FIRST-MOTION TEST

For this test, the S/C is vertical.

1. Move the S/C into the TV room by rolling it on its cart between buildings with the S/C bagged.
2. Situate the cart under the overhead crane near the room door.
3. Install the TV fixture C-plates to the S/C with the Ti isolators. Use the new bolting schedule for installing the Ti isolators. The split in the plates aligns with the S/C Y axis.
4. Install the two 43.5" black C-channel rails to the plates.
5. Install the two 60' black wheel rails to the plates.
6. Attach the Imager lifting bars to the Imager.
7. Attach the load cell to the lifting bars.
8. Unbolt the S/C from the Red ring.
9. Insert the locking pins into the two fixture rollers to prevent S/C movement.
10. Using the overhead crane, Hydraset, and 200 lb. weight, lift the S/C and fixture onto the vacuum chamber cart.
11. Wheel the cart to the front of the TV chamber and install the connector rails between the cart rails and the chamber rails.
12. Remove the locking pins.
13. Slowly roll the S/C into the chamber.
14. Reinsert the locking pins.
15. Reverse this procedure for removal to the point of bolting the S/C (use four bolts) to the Red ring.

2. THERMAL VAC

For this test, S/C is rolled over to horizontal.

1. Remove the two 60" wheel rails from the C-plates.
2. Build up the rollover fixture around the S/C.
3. Attach the strong-back to the crane and position over the rollover fixture.
4. Connect the lifting cables to the rollover fixture lifting eyes.
5. Remove the four bolts from the Red Ring.
6. Lift the S/C from the cart and remove the cart.
7. Wheel the Flowtron into position surrounding the rollover fixture.
8. Mount the Flowtron pivots in the second lowest hole.
9. Wheel the Flowtron so its surrounding the S/C.
10. Adjust the S/C height so that the Flowtron plate holes line up with the bolt holes in the 2nd and 3rd rows from the bottom on the rollover fixture.
11. Install the eight ½"-20x1" bolts and tighten.
12. Crank up the Flowtron screw-jacks until the Flowtron casters are 2" above the floor. This will unload the crane and the S/C will be held by the Flowtron.
13. Detach the lifting cables from the rollover fixture.
14. Roll the S/C over 90 deg so that the +Y axis is pointing up.
15. Place the jack stands under the rollover fixture and set them to their highest setting.
16. Place two at the "upper" (towards the imager) ends of the X-braced rollover fixture side frames up against the black cross-members.
17. Place the other two at the "lower" end of the frames so that they are 4-1/2" from the corner of the X-frames.
18. Lower the Flowtron screw-jacks simultaneously until the S/C comes to rest onto the jack stands.
19. Remove the eight bolts holding the rollover fixture to the Flowtron.
20. Remove the Flowtron by loosening the 8 hand-screws and sliding the chrome tubes out from the blue side-frames.

21. Remove the four screw-jacks from the Flowtron and bolt to the Horizontal Thermal Vac Fixture (HTVF) side frames using the same 16 3/8"-16x1" bolts.
22. Install the C-plate extensions to the C-plates using 12 5/16"-24x1" SHCS.
23. Bolt the HTVF side frames to the extension plates using 20 1/4"-28x1" SHCS. Use the screw-jacks to set the height so that the bolt holes line up.
24. Bolt the 1/2"x5"x60" plates to the top and bottom of the C-plates, extension plates, and HTVF side frames using 68 1/4"-28x1-1/4" SHCS.
25. Bolt the HTVF cross-members to the side-frames using 12 1/4"-28x1" SHCS.
26. Recheck that all bolts are tight.
27. Simultaneously raise all four screw-jacks to raise the rollover fixture off of the jack-stands. The S/C is now supported by the HTVF.
28. Remove the jack-stands.
29. Make sure the roller lock pins are installed in the HTVF rollers.
30. Simultaneously lower all four screw-jacks to set the S/C onto the HTVF rollers.
31. Remove the rollover fixture cross-braces from the side frames.
32. Remove the rollover fixture side frames from the C-plates.
33. Attach the strong-back lifting cables to the lifting eyes on the HTVF.
34. Lift the S/C up and position the TV cart under it.
35. Lower the S/C onto the TV cart.
36. Install the Soar Array Simulators onto the S/C.
37. Wheel the cart to the front of the TV chamber and install the connector rails between the cart rails and the chamber rails.
38. Remove the locking pins.
39. Slowly roll the S/C into the chamber.
40. Reinsert the locking pins to prevent S/C movement.
41. Proceed with hookup and testing.
42. Reverse this procedure for removal.